

Application Number: 10/084, 072

Group Art Unit Number: 3635

Filing date: 02/27/2002

Name of the examiner who prepared  
the most recent office action:

Mr. MCDERMOTT, KEVIN

Title of invention:

SUPPORT STRUCTURE FOR ISOLATION  
EARTHQUAKE MOTIONS

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WHAT I CLAIM IS:

A support structure for isolating earthquake motions, comprising a pressure-receiving steel plate of concave-curved surface adjusted with a bottom of a structure and a pressure-applying steel plate of convex-curved surface facing to said concave-curved surface, a means of interposing two types of pluralities of steel balls between said pressure-receiving curved surface and pressure-applying curved surface, one type of said plurality of steel balls are made with (less accuracy) smaller diameter than that of other

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group of balls, a means of mounting said two  
groups of balls on said pressure-receiving  
curved surface steel plate to come in point  
contact in all direction, a means of covering  
all the surface of top and bottom of steel plate  
except the curved surface with concrete by which  
forming a column as a foundation of a const-  
ructure, a means of applying convex curved  
surface with a foundation of a construction by  
bolts and nuts, a means of mounting a aligning  
frame for said steel balls on a periphery of  
said concave curved surface to allow said balls  
to move freely, a means of isolating the linkage  
of earthquake motion to the structure by unified

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# SUPPORT STRUCTURE FOR ISOLATING EARTHQUAKE MOTIONS

simultaneous rolling of said two types of balls interposed between said foundation pressure-receiving upper surface steel plate and opposing pressure-applying bottom and steel plate surface of said colum.

2. A support structure for isolating earthquake motions as claimed in claim 1, a means of moving the structural column vertically by foundation pressure-receiving curved surface thereby stopping the propagating slide movements by shock absorber effect of spherical level difference (energy generated) by which isolating the earthquake motions and stopping the free movement.

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3. A support structure for isolating earthquake

motions as claimed in claim 1;

a means of giving the foundation hoop a function  
of suppress the foundation column not to remove  
from the pressure receiving balls when jump-up  
phenomenon caused by directly under earthquake  
or float-up phenomenon caused by typhoon, in  
this case the hoop is on the foundation.